upon suplementation, toxicity profile, impoved bone health and survival should be evaluated in future studies.

TM_SC-1_V1.7
EFFICACY OF IMMUNIZATION AGAINST HEPATITIS B VIRUS INFECTION IN ACUTE LYMPHOBLASTIC LEUKEMIA

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Introduction: Children with malignant disease are at an especially high risk for developing hepatitis B virus infection from immunosuppression secondary to chemotherapy, radiotherapy and multiple blood transfusions. Most of the children infected with HBV develop chronic hepatitis. The increasing potential for the cure of childhood malignant diseases emphasizes the need for a method of reducing hepatitis and its sequelae in these children.
Objective: The aim of the study was to assess whether immunization against Hepatitis B (Hepatitis B vaccination +/- Hepatitis B Immunoglobulin) prior to start of chemotherapy provides protective anti HBs titer in patients with Acute Lymphoblastic Leukemia.
Materials and Methods: This observational study included 104 consecutive children with Acute Lymphoblastic Leukemia treated in Paediatric Oncology Division, Regional Cancer Centre, Thiruvanathapuram and on follow up after completion of chemotherapy.The minimum duration of follow up for inclusion in study was 6 months.The details regarding anti HBs titers at diagnosis and immunization given were obtained from the case records.Based on the intial anti HBs titers children were divided into 2 groups, those with protective anti HBs titers (> 10IU/L) and those with non-protective titers (< 10IU/L).As per the divisions policy, all children with protective anti HBs titers had received single booster of double dose of Hepatitis B vaccine.Those with non-protective anti Hbs titers received HBIG (20IU/Kg ;Max 400IU) followed by double dose of Hepatitis B vaccine at 0,1,6 months starting 2 months after HBIG. AntiHBsAg titers were done at follow up using Enzyme Linked Fluoroscent Assay method using VIDAS (Bio-Merieux).
Results: Of the 104 children included in the study, 67 (64.4%) children had protective anti HBs titers at presentation, whereas 37 (35.6%) had non-protective titers. At follow up, 29 (27.8%) children had protective anti HBs titers and 75 (72.2%) children had non-protective titers (<10 IU/L).Of the 67 children with protective antiHBstitres, 40.2% (n=27) retained their protective titers, whereas 59.8% (n=40) lost their protective titers.In the 37 children with non −protective antiHBs titers at presentation only 5.4% (n=2) developed protective titers following passive and active immunization, whereas 96.4 % (n=35) failed to seroconvert.
Discussion: Children receiving chemotherapy even with protective antiHBs titers at presentation show a loss of protective titers, inspite of receiving a single booster of double dose HBV vaccine.Those with non-protective titers, failed to seroconvert despite a combination of passive and active immunization .The loss of antiHBs titers occurred irrespective of the levels of initial anti HBs titers larger sample size is required to statistically validate these results
Conclusion: The loss of protective titers and the failure to seroconvert in Acute Lymphoblastic Leukemia children receiving chemotherapy is a concern especially in resource limited settings.The immunization as per this schedule does not seem to offer protective titres against HBV.There is probably a need for more frequent monitoring of antiHBs titers and repeated administration of Hepatitis B Immunoglobulin as passive prophylaxis which in developing countries like ours is limited by financial constraints.

TM_SC-1_V1.8
VORICONAZOLE PLASMA LEVELS, ITS DETERMINANTS, AND IMPACT ON OUTCOME OF INVASIVE FUNGAL INFECTIONS IN CHILDREN WITH CANCER: A PROSPECTIVE STUDY

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Background: We evaluated voriconazole plasma levels and determined the impact of age, dose, route, generic formulations, and concomitant drugs on plasma levels as well as impact of levels on outcome of invasive fungal infections (IFI).
Methods: We prospectively studied 256 consecutive children (<19 years) given voriconazole either for prophylaxis (N-154) or treatment (N-102) of IFI between August 2008 and February 2016 as per the recommended doses. IFI diagnosis and clinical outcome evaluation were based on EORTC Mycoses Study Group ('EORTC/MSG') definitions. The therapeutic range was defined as 1–5 μg/ml.
Results: A total of 458 voriconazole trough measurements (median age 8 years) were analysed at steady-state [75 on intravenous (IV) and 181 on oral (PO) doses]. Significant Inter- and intrapatient variability in levels was observed and 46% of patients required dose adjustment. The median voriconazole dose was 16 mg/kg/day and the median duration of therapy was 6 weeks. 53% of children starting with the recommended dose achieved an adequate trough level and 61% after therapeutic drug monitoring (TDM)-based dose adjustments. A significant correlation between oral doses and trough levels of voriconazole was observed in patients less than 11 years old (Spearman's rank correlation coefficient =0.18, P < 0.03). A significant relationship was established between plasma levels above normal range and liver toxicity (P=0.03). On IV to oral switch, 25% children had drop in the serum levels to subtherapeutic levels. No impact of gender, steroids usage, and use of generic formulation was observed on levels or outcome. Children with Voriconazole level <1 μg /ml were more likely to have treatment failure at week 6 of voriconazole therapy compared to children with >1μg/ml (failure, 20.4% vs. 2.1%; P <0.001).). 26% children with suboptimal trough levels at 12 hours post voriconazole showed optimal levels at 8 hours suggesting early plasma clearance and need for frequent dosing.
Conclusions: Our study confirms the large Inter- and intrapatient variability in voriconazole trough plasma levels particularly after enteral dosing necessitating higher than recommended doses in young children, and a trend to non-linear pharmacokinetics in older patients. A significant relationship between voriconazole trough >1 μg/mL and outcomes as well as some adverse events was confirmed justifying the TDM especially in young children.

TM_SC-1_V1.9
REGULAR NUTRITIONAL ASSESSMENT OF CHILDREN WITH MALIGNANCY: OBSERVATIONS OF A NUTRITIONIST DEDICATED TO A PAEDIATRIC ONCOLOGY UNIT

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Abstract
Introduction: Nutritional status is recognised to be a modifiable risk factor for treatment outcomes in Pediatric Oncology. In a developing country Non- Governmental Organizations can play an important role in supportive care. A Nutritionist supported by Cuddles foundation started nutritional assessment and intervention at our centre from March 2016.
Objective: To determine the nutritional status in children with malignancy at the start of therapy and on serial follow up by a nutritionist dedicated to the Paediatric Oncology Unit.
Method: All children diagnosed with malignancy between March 2016 and August 2016 were included. Demographic details of children were collected. Anthropometric indices (Weight, Height, BMI and Mid Upper Arm Circumference) were recorded at serial time points (at diagnosis and at follow up visits of 6 to 8 weeks). Counselling of appropriate diet and enteral based formula feeding were the nutritional interventions. Changes in nutritional status during this period were analysed.
Results: A total of 27 children were analysed including 15 Haemato-lymphoid and 12 solid tumors. Mean age of children was 5.6yrs (9 months to 16 yrs) of which 19 were males and 8 were females. Based on BMI, 21(77.5%) children started therapy with under nutrition including Mild (-1to -2SD), Moderate (-2 to -3 SD), Severe (<-3SD) malnutrition in 7 (26%), 7 (26%) and 8 (30%) respectively. Two (7.5%) children were overweight at the start of therapy. On follow up, 46% of children had improvement, 26.9% were static and 26.9% had a worsening in nutritional status during their follow up visits. Of 8 (29.6%) children who started with severe